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| APPLICATION NO.                                                                | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/791,428                                                                     | 03/02/2004  | William S. Wheat     | 8540G-83/COB        | 5404             |
| 27572                                                                          | 7590        | 06/22/2009           | EXAMINER            |                  |
| HARNESS, DICKEY & PIERCE, P.L.C.<br>P.O. BOX 828<br>BLOOMFIELD HILLS, MI 48303 |             |                      |                     | LEE, CYNTHIA K   |
| ART UNIT                                                                       |             | PAPER NUMBER         |                     |                  |
| 1795                                                                           |             |                      |                     |                  |
| MAIL DATE                                                                      |             | DELIVERY MODE        |                     |                  |
| 06/22/2009                                                                     |             | PAPER                |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |  |
|------------------------------|------------------------|---------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |  |
|                              | 10/791,428             | WHEAT ET AL.        |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |  |
|                              | CYNTHIA LEE            | 1795                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 31 March 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 23-34 and 47-54 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 27-34 and 47-54 is/are allowed.  
 6) Claim(s) 23-26 and 29 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                      |                                                                   |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____.                                                         | 6) <input type="checkbox"/> Other: _____ .                        |

***Response to Pre-Appeal Conference Request***

This Office Action is responsive to the Pre-Appeal Conference Request filed on 3/31/2009. Claims 23-34 and 47-54 are pending. Applicant's arguments have been fully considered and are persuasive. The instant claims are rejected under new grounds of rejections. Claims 23-26, 29 are non-finally rejected for reasons stated herein below. Claims 27, 28, 30-34, 47-54 are allowed.

***Claims Analysis***

The recitation "for controlling ... a vehicle" has been considered but was not given patentable weight. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ2d 1647 (1987). See MPEP 2114.

The recitation "when said vehicle is not running" has been considered but was not given patentable weight. It has been held by the courts that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (BdPatApp & Inter 1987). See MPEP 2115.

It has been held by the courts that claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber* 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997). See MPEP 2115.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23, 24, 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Mufford (US 6186254).

Refer to Fig. 1. Mufford discloses a fuel cell system comprising a fuel cell stack (30), an air supply (160), a water supply (175), a hydrogen supply (145), a heater (70) connected to an output of said stack to warm the stack and water supply and is external to the stack.

The heater is a resistor (4:23) (applicant's claim 24).

The hydrogen supply system 145 and oxidant (in the illustrated embodiment the oxidant is air) supply system 160 are under the control of PLC 250 (8:44-47). The controller necessarily controls the hydrogen and air supply to power the heater to warm the stack because the heater is powered by the fuel cell.

In operation, temperature sensor 255 provides the primary indicator of operating temperature of the fuel cell stack 30. The temperature sensed by temperature sensor 255 is used by the programmable logic controller 250 to determine the amount of heating or cooling of the cooling medium that is required to maintain the temperature of the fuel cell stack in its optimum operating range (7:33-35) (applicant's claim 26).

It is noted that the recitation “said vehicle” is not positively recited. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex Parte Masham*, 2 USPQ2d 1647 (1987). See MPEP 2114.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mufford (US 6186254) as applied to claim 23, in view of Nakanishi (US 6592741).

Mufford discloses all the elements of claim 23 and are incorporated herein.

Mufford does not disclose the element of claim 25. Nakanishi teaches a hydrogen reactor 23 provided with a hydrogen pressure sensor 11. Based on a value detected by the hydrogen pressure sensor 11, the amount of hydrogen produced in the reactor 23 can be detected. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a hydrogen pressure sensor and connect it to the controller of Mufford for the benefit of being able to know the amount of hydrogen on hand.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mufford (US 6186254) as applied to claim 23, in view of Wells (US 2004/0185316) and Ballentine (US 2002/0192467).

Mufford discloses all the elements of claim 23 and are incorporated herein. Mufford does not disclose an ambient temperature sensor. Wells teaches an ambient temperature sensor to monitor the ambient air temperature surrounding the fuel cell system [0062]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add an ambient temperature sensor to monitor the ambient air temperature surrounding the fuel cell, as taught by Wells.

Mufford does not disclose a water tank sensor. Mufford discloses a water tank and a coolant path supplied by the water in the water tank (6:14-15). Mufford discloses a temperature sensor of the cooling medium 255 (fig 1 and 15-20). Ballentine teaches a water temperature sensor [0059]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a water temperature sensor to the system of Mufford for the benefit of being able to detect the water temperature to better control the temperature of the cooling medium.

### ***Allowable Subject Matter***

Claims 27, 28, 30-34, 47-53 are allowable.

The following is a statement of reasons for allowable claims:

Prior art does not suggest nor disclose “where said controller determines whether heating is necessary based on said stack temperature if said hydrogen pressure signal

exceeds a first pressure value" (applicant's claim 27 and 47) or "wherein said controller uses said stack temperature signal, said ambient temperature signal and said water temperature signal to access a lookup table to determine whether heating is necessary when said pressure signal does not exceed a first pressure value" (applicant's claim 30).

***Response to Arguments***

Applicant's arguments filed 3/31/2009 have been considered but are moot in view of the new interpretation of the claim 23.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/  
Examiner, Art Unit 1795

/PATRICK RYAN/  
Supervisory Patent Examiner, Art  
Unit 1795